Targeting stromal progenitors to prevent the development of heart failure

Grant Award Details

Targeting stromal progenitors to prevent the development of heart failure

Grant Type: Therapeutic Translational Research Projects

Grant Number: TRAN1-12893

Project Objective: To conduct a well-prepared pre-IND meeting with the FDA for a humanized monoclonal antibody targeted to ENPP1 for prevention of development of heart failure.

Investigator:

Name:	Arjun Deb
Institution:	University of California, Los Angeles
Type:	PI

Disease Focus: Heart Disease

Human Stem Cell Use: Adult Stem Cell

Award Value: $4,841,428

Status: Pre-Active

Grant Application Details

Application Title: Targeting stromal progenitors to prevent the development of heart failure

Public Abstract:

Translational Candidate

Monoclonal antibody targeting Ectonucleotide phosphodiesterase/pyrophosphatase 1 (ENPP1)

Area of Impact

Heart disease: To prevent the development of heart failure after heart attacks

Mechanism of Action

After myocardial infarction, myofibroblast progenitors express ENPP1. ENPP1 is a type II transmembrane protein that hydrolyzes extracellular ATP and hydrolytic products generated by ENPP1 initiate an inflammatory cascade that worsens cardiac repair. The monoclonal antibody would bind to and inhibit ENPP1 on myofibroblast progenitors to decrease inflammation and scarring and augment heart repair and post injury heart function after myocardial infarction.

Unmet Medical Need

Approximately 6 million people in the United States have heart failure (HF) and once a diagnosis of HF is made, approximately 50% survive 5 years. There is thus an unmet need for developing novel therapeutics for HF. The agent being developed will prevent the development of HF after heart attacks.

Project Objective

Pre IND meeting

Major Proposed Activities

- Development of a stable cell bank for antibody production
- Upstream and downstream process development
- Dose range finding studies

Statement of Benefit to California:

Cardiovascular disease remains a leading cause of death in California and accounts for nearly one third of all deaths. The prevalence of heart disease is close to 25% in individuals above the age of 75 and 7% of individuals above the age of 65 suffer from heart failure. Heart attacks are the leading cause of heart failure and the therapeutic agent developed here will prevent the development of heart failure after heart attacks and of immense benefit to Californians.
